

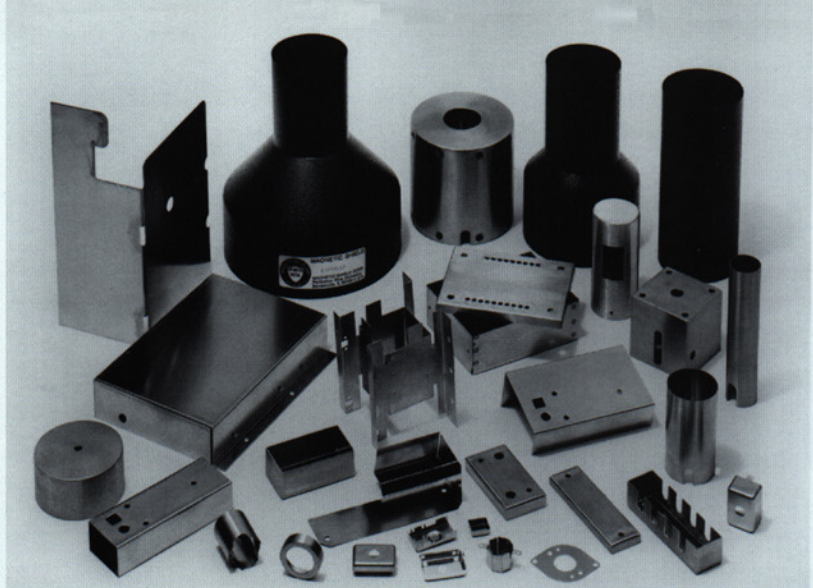
A high-contrast, black and white photograph of Earth from space, showing the curvature of the planet and a bright horizon line. The image serves as the background for the entire page.

# Magnetic Shield Corporation

*Product  
Selection  
Guide*



**Magnetic Shield Corporation** produces a wide range of products to satisfy needs of many customers. A few of these products are shown in this picture. All of them - as well as many others - can be readily adapted to specific needs, solving vexing problems of magnetic interference while saving design time and expense.



## Causes and Cures of Magnetic Interference

Magnetic interference can pose major problems in the design and operation of electrical and electronic equipment. Instruments, control systems, data processing equipment and communications networks frequently show aberrations whose sources may not be readily recognized but which are due to magnetic interference.

In general, such interference may be classified as either internal or external.

**Internal interference**, created by operation of components within the system itself, can usually be nullified by shielding the individual components and confining the magnetic force they create. Magnetic Shield Corporation can provide the materials and know-how by which this shielding can best be accomplished.

**External interference** is frequently caused by nearby equipment, such as transformers or switching equipment, which generate magnetic "spikes" affecting apparatus which is not physically attached to the source of interference. Magnetic Shield Corporation has the materials and experience which can enable its customers to shield equipment from such interference.

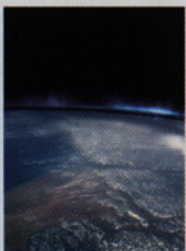
Magnetic Shield Corporation's experienced staff of engineers and technicians provides a convenient source of design and application assistance to handle virtually any magnetic interference problem.

## Solving Your Magnetic Interference Problems

For over fifty years, Magnetic Shield Corporation has specialized in solving problems of magnetic interference. Today this company is widely recognized as the leader in this specialized field. Because our engineers concentrate on problems related to magnetism, they are frequently able to produce "ready-made" solutions to such problems, which might needlessly consume valuable time of technical personnel with broader interests.

Magnetic Shield Corporation originated in 1941 as the Perfection Mica Company. From its beginnings in the mica business, the company evolved with the electronic industry to become a recognized authority in its field. Today we offer a variety of services, as well as products and materials ranging from laboratory instruments to magnetically-shielded rooms. Our NETIC® and CO-NETIC® alloys are proprietary materials which are widely known and specified for many demanding applications.

This folder gives brief descriptions of many of our products and services. We invite you to request further information. If you have other requirements or problems which may stem from magnetic interference, our skills and expertise may be useful to you. Your inquiry - by phone, fax, e-mail, or letter, will receive our prompt attention.



Cover credit:  
Digital Illustration of  
Aurora Borealis from Space.  
Photo acquired from photodisc.com



### MAGNETIC SHIELD CORP.

Perfection Mica Co.  
740 N. Thomas Drive  
Bensenville, IL 60106 U.S.A.  
Fax 630-766-2813 Phone 630-766-7800



# Design Guides

## Zero Gauss Chambers

Fabricated from high permeability CO-NETIC AA alloy in a series of two or more concentrically spaced magnetic shields. Scientific, industrial and commercial applications include testing, calibration of instruments, and product manufacture.



**For complete information, request Catalog ZG-2**

## Cryogenic and Vacuum Shields

Magnetic Shield Corporation has provided many different shapes and sizes of shielding chambers, up to 8 feet in diameter. Constructed of CO-NETIC AA alloy, these shields provide practical, durable solutions to problems of magnetic interference in laboratories or industrial environments.



**For complete information, request Catalog CV-1**

## Slide Chart Calculator for Magnetic Shielding, request item SC-1

### Useful Conversion Factors:

$$1 \text{ Gauss} = 10^{-4} \text{ Tesla} \\ = 0.1 \text{ milliTesla}$$

$$1 \text{ Tesla} = 10^4 \text{ Gauss}$$

$$1 \text{ milliTesla} = 10 \text{ Gauss}$$

$$1 \text{ microTesla} = 10^{-2} \text{ Gauss} \\ = 10 \text{ milliGauss}$$

$$1 \text{ nanoTesla} = 10^{-5} \text{ Gauss} \\ = 1 \text{ Gamma}$$

$$\text{Attenuation Ratio} = 20 \log (\text{Attenuation Ratio}) \\ (\text{in dB})$$

$$1 \text{ Oersted} = 79.6 \text{ ampere} \cdot \text{turns/meter}$$

## ImageGuard™ CRT Monitor Enclosure



A simple five-sided magnetic shield, precisely designed and constructed of CO-NETIC AA Alloy.

ImageGuard is highly effective in preventing such screen disturbances as smeared colors, swimming, distortion, rolling and jitter.

**For complete information, request Catalog CM-3**

## Magnetic Shield Rooms and Enclosures



Protecting sensitive equipment from external magnetic interference can assure optimum performance and extend apparatus life. Custom-designed to fit user needs, these rooms and enclosures can also provide a useful degree of RF shielding.

**For complete information, request Catalog RE-2.**



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# Standard Products



## Lab Kit for Magnetic Shielding

This kit enables a technician to accumulate layers of shielding materials (CO-NETIC and/or NETIC) until desired attenuation is achieved, thus establishing minimum material requirements with resulting cost savings in final design. In this manner, changes in circuit characteristics are easily and quickly evaluated and accommodated.

Lab Kit includes an assortment of shield materials, double-faced pressure-sensitive tape for easy assembly, and AC Magnetic Probe, Model EP-101A for use with DVM or oscilloscope to measure field intensities and attenuation ratios.

**For complete information, request Catalog LK-4**



## Photomultiplier Shields

CO-NETIC Magnetic Shields provide significant attenuation of magnetic fields, thus improving amplification characteristics of photomultiplier tubes. Effective shielding is

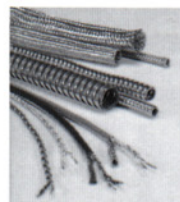
ensured over wide range of field intensities. Standard and custom shields available.

**For complete information, request Catalog PM-6**

## Cable, Conduit and Sleeving

Patented Inter-8® Weave of #24 AWG wires provides superior attenuation over twisted pair. Insulation PVC or ETFE. Available unshielded or with braided CO-NETIC shielding.

SPIRA-SHIELD Flexible Conduit in 1/4", 3/8", and 3/4" I.D. CO-NETIC Braided Sleeving in 1/4", 1/2", and 3/4" I.D. CO-NETIC Wire in #36 AWG and #22 AWG.



**For complete information, request Catalog WC-3**



## ImageGuard II CRT Monitor Shields

Standard enclosures fit a range of monitor sizes to prevent display "jitter" and other screen disturbances caused by nearby

electrical equipment. These pre-engineered enclosures block the interfering magnetic fields to restore proper operation.

**For complete information, request Catalog IG-3**

## Gaussmeter Rental Program

Three Axis A.C. Gaussmeters are available for a 30 day rental period. An excellent tool for locating and quantifying A.C. magnetic fields. The meter is also helpful in measuring shielding effectiveness and calculating attenuation ratios. Range: .1 to 511 mG.



**For complete information, request Catalog GR-1**

## Magnetic Field Evaluator Probes

Used with DVM or oscilloscope to determine AC magnetic field sources and densities - and to measure attenuation of magnetic shields. Enable technician to specify proper gauges of CO-NETIC and NETIC alloys and form prototype shields.



**For complete information, request Catalog EP-4**

## Helmholtz Coil Assemblies

Provide uniform magnetic fields to determine sensitivity of components or systems to outside interference and evaluate magnetic shield designs.

Conform to applicable portions of ASTM standard A698. Available models: 48" and 24".



**For complete information, request Catalog HC-1**



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# Alloys

## CO-NETIC® and NETIC® MAGNETIC SHIELDING ALLOYS

CO-NETIC AA provides high initial permeability and corresponding high attenuation; hence it is most useful in fields of low intensity.

NETIC S3-6, because of its high magnetic saturation characteristics, is preferred in fields of high intensity. Choice of materials (singly or in combination) is determined by field intensity, type of field, and required attenuation. If used in combination, the NETIC layer is placed closer to the source of interference and the CO-NETIC layer closer to the component being shielded.

Both materials are available in sheet stock. CO-NETIC foil, .010" gauge and lighter, is also available in coil form. NETIC foil available .004" thick.

**Sheet Stock:** (standard width 30")  
Shipped immediately from stock.

### CO-NETIC AA Alloy Perfection Annealed

High permeability characteristics. Perfection annealed for optimum magnetic shielding properties. No further annealing after fabrication is necessary if severe forming is avoided. Maximum Length 59".

### CO-NETIC AA Alloy Stress Annealed

High permeability characteristics. Stress annealed for ease of fabrication. Must be final annealed for maximum attenuation. Maximum Length 120". Also stocked 24" wide.

### NETIC S3-6 Alloy

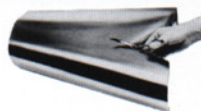
High saturation capability. Also stocked in .095". Maximum Length 120".

Std. Thk. (inch)
.014
.020
.025
.030
.040
.050
.062

**Foil Stock:** (standard coils –  
50 and 100 linear ft.)

### All foil is Perfection

**Annealed** for maximum attenuation. All sizes available with double-faced pressure sensitive tape and release coated liner. Standard widths shipped immediately from stock. Foils can be slit to a minimum width of 1/4", with or without backing. Slit foils shipped within 10 days after receipt of order.



Std. Thk. (inch)	CO-NETIC Perfection Annealed Width (Inch)	NETIC Perfection Annealed Width (Inch)
.002	4	-
.004	4 & 15	4 & 15
.006	4 & 15	-
.010	4 & 15	-

**For complete information, request Catalog MG-7**

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# Magnetic Shield Corporation

Perfection Mica Company

## SERVICES

- Technical Consultation
- Application Assistance
- Custom Design
- Field Surveys

## FABRICATED PRODUCTS

- Magnetic Shields for Transformers, CRT's, Photomultiplier Tubes, Motors, Relays and Other Components
- Large Enclosures
- Custom Shields
- Engineering Prototypes
- Production Quantities

## FACILITIES

- Shearing, Slitting and Butt Cutting
- Forming / Stamping / Deep Drawing / Hydroforming / Spinning / Etching / Laser Cutting / Wire EDM / Machining / Heliarc and Spot-Welding / Waterjet / Brazing
- Secondary Operations
- Hydrogen and Vacuum Annealing
- Finishing
- Quality Assurance Program-Mechanical Inspection and Attenuation Records
- Certification to all Government, Military and Company Specifications

**Magnetic Shield .....the Preferred Source**

**Call Now for Immediate Assistance**

Toll Free - 800-304-5665 (in the U.S.A.)

Main Number - 630-766-7800

Facsimile - 630-766-2813

On the Internet: [www.magnetic-shield.com](http://www.magnetic-shield.com)

E-mail: [shields@magnetic-shield.com](mailto:shields@magnetic-shield.com)



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